

2006

Overview of Ireland's Productivity Performance, 1980-2005



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Chairman's Preface



The National Competitiveness Council (NCC) reports to the Taoiseach on key competitiveness issues for the Irish economy and makes recommendations on policy actions required to enhance Ireland's competitive position. In addition to the two-volume Annual Competitiveness Report, it also publishes statements on issues of relevance to Ireland's competitiveness.

As outlined in *Benchmarking Ireland's Performance*, Volume One of the NCC's Annual Competitiveness Report, 2006, while Ireland's competitiveness outlook is generally favourable, areas of concern for policymakers still exist. One of these is the slowdown in productivity growth in the Irish economy in recent years. This statement by the NCC outlines the key findings of research into Ireland's productivity performance between 1980 and 2005. Its main objectives are to show how Ireland performs relative to its economic peer group, and to break down the performance into the different sectors that constitute Ireland's economy.

National competitiveness and productivity go hand in hand for a small open economy like Ireland. Through specialisation and a vibrant exporting sector, they underpin the ability of Irish citizens to enjoy increasing standards of living through higher incomes. We believe this statement will complement the NCC's annual publications and stimulate debate on addressing Ireland's productivity challenge.

I would like to thank the Council members for their commitment to deepening our understanding of key components of Ireland's competitiveness, such as Ireland's productivity performance. I would also like to acknowledge the research and secretariat support work of the Forfás Executive in bringing material for the Council's consideration.

Don Thornhill

Chairman, National Competitiveness Council

Executive Summary

Ireland's recent economic growth has been driven by increases in the numbers employed and by growth in the productivity of those at work. As the potential for employment growth wanes due to demographic change and the limits to migration, productivity growth will be the most important long term driver of Ireland's competitiveness and improvements in national living standards.¹

Ireland's productivity growth since 1980 has been concentrated in a narrow base around modern manufacturing sectors, which employ less than seven percent of the workforce. As an economy, we cannot depend on similar increases in productivity in the same sectors to drive productivity growth in the future. Indeed, as the costs of doing business rise and Ireland moves to a high wage economy, the productivity of locally trading sectors, including the public sector, will become increasingly important, as they provide vital inputs for Ireland's internationally trading sectors.

Despite the importance of productivity in raising living standards in Ireland, there has been a limited amount of research on Ireland's productivity performance to date.² This paper endeavours to provide an overview of Ireland's productivity performance over the past 25 years relative to a range of other countries. It assesses Ireland's performance at the national, broad sectoral and sector specific level. It is based on a more detailed background paper by the Forfás secretariat, which is available on the NCC's website, <http://www.forfas.ie/ncc>.

Key findings:

- ▶ Ireland has enjoyed substantial economic growth since the 1980s. Whereas other OECD economies' growth over the same period has been driven by increases in productivity more so than in employment, Ireland's growth has been due to gains in both. However, productivity increases must be the key driver of future growth in Ireland.
- ▶ Ireland's productivity growth between 1990 and 2003 is estimated at 4.6 percent per annum. As high productivity levels in certain sectors may include the returns from R&D, marketing and management practices undertaken by multinationals in other countries, the productivity performance of these sectors is adjusted downwards to US levels. Based on this adjustment, Ireland's overall productivity performance is estimated to have averaged 3.3 percent a year between 1990 and 2003. While this is still a strong performance, it suggests that Ireland's productivity level remains marginally below the US level.
- ▶ While Ireland's productivity growth has been strong and remains strong relative to other countries, between 2000 and 2005 it slowed to its lowest levels since 1980, at a time when productivity growth accelerated in the USA and remained strong in the ten new EU member states. The data suggest that Irish productivity growth was particularly poor in 2005.
- ▶ Ireland's productivity growth between 1990 and 2003 was driven by a continued strong performance in modern manufacturing and an improvement in the performance of construction and tradable services. The traditional manufacturing and food and agriculture sectors have not contributed significantly to productivity growth, while non-tradable services have made a relatively small contribution to Irish productivity growth.
- ▶ Mirroring international trends, productivity growth rates have been highest in a narrow range of technology intensive manufacturing and services sectors in Ireland.

1 While productivity growth drives increases in national living standards, a wide range of factors determine how these productivity gains are shared among the population. See "Where did the Productivity Growth Go? Inflation Dynamics and the Distribution of Income", Ian Dew-Becker and Robert J. Gordon, 2005.

2 Exceptions do exist, such as: "Productivity in Ireland: Trends and Issues", Mark Cassidy, Central Bank, Quarterly Bulletin Spring 2004, "Productivity: Ireland's Imperative" Paul Tansey, 2005, commissioned by Microsoft, and ICTU's "Coming Challenges of Productivity", Spring 2006.

- ▶ Despite Ireland's overall convergence to EU and US productivity levels, Ireland's productivity levels lag EU and US levels in several sectors of the economy, but particularly in some traditional manufacturing sectors and utilities.

At a sectoral level:

- ▶ Within manufacturing, Irish output is dominated by three 'modern' manufacturing sectors – chemicals, electronics, and printing/publishing – which are mostly foreign owned. Modern manufacturing has recorded substantially higher productivity levels and growth rates than other manufacturing sectors.
- ▶ As high productivity levels in modern manufacturing may include the returns from R&D, marketing and management practices undertaken by multinationals in other countries, rather than in Ireland, the productivity performance of these sectors is adjusted downwards to US levels. This adjustment almost halves the 2003 figure for per hour productivity in Irish manufacturing. In traditional manufacturing, while productivity grew faster than the EU and US averages over the period as a whole, growth has slowed since 1999 and average productivity in traditional manufacturing in Ireland still lags the US by 13 percent.
- ▶ In tradable services, productivity in communications has improved in line with other countries, while productivity in tourism remains low relative to other sectors in Ireland. Ireland's financial and computers services sectors appear to be performing strongly.
- ▶ In non-tradable services, a substantial productivity gap exists in utilities between Ireland and other economies. Further, the wholesale and retail trades and transport services have experienced little productivity growth since 1990. While public services generally record low productivity growth rates, simple measures of overall productivity suggest that Ireland performs well relative to the public sectors of other countries.

Conclusions

Productivity is not about working harder, but about working smarter. A wide range of factors can influence a country's productivity growth rates, and these stem from decisions made both at government level and at firm level. From a government perspective, its institutional structures and policy settings must be supportive of investment, entrepreneurship, competition and innovation. This includes the existence of a stable macroeconomic environment with well-managed public finances and price stability, as well as a regulatory environment that promotes competition and a flexible labour market and which minimises unnecessary red tape. The government can also directly influence national productivity through productivity improvements in the sectors where it is an employer. These include in the provision of public services, one of the largest sectors in Ireland, as well as in transport services and utilities.

At the firm level, productivity improvements centre on product innovation, use of technology, and management practices. Adoption of ICT, in tandem with the training of workers and management in its use, can drive productivity growth. This is as true for services, including locally trading and public services, as it is for manufacturing. Implementing internationally recognised best practice in management and organisational structures can vastly improve a firm's efficiency also. Research for the National Competitiveness Council has confirmed that Ireland is a relatively expensive country in terms of the costs of doing business. Therefore, if future wage growth is to be consistent with enterprise competitiveness, productivity growth in firms is essential.

Benchmarking Ireland's Performance, Volume One of the NCC's Annual Competitiveness Report, 2006, charts many of the factors mentioned above at an aggregate level. Volume Two, *Ireland's Competitiveness Challenge*, to be published later in the year, will examine the implications of the trends outlined here and highlight the key policy directions needed to promote productivity growth in the future.

Box I: Scope and Strength of the Report and of the Data

All figures presented, unless otherwise stated, are based on measuring productivity through the value added (VA) approach. This measures revenue minus intermediate input costs, divided by the total number of hours worked in that sector/economy. While they are the best statistics available and are for the most part consistent across time and countries, there are a number of methodological issues and caveats that arise with the VA approach:

- ▶ Productivity should measure the quantity of output that an hour's work gives, at a given level of quality. However, there is no 'given level of quality' – changes in quality occur all the time and the statistics rely on the accuracy of sector-specific price deflators.
- ▶ The VA approach is dependent on having accurate price deflators that distinguish increased output from inflation. Price deflators are more accurate for sectors that are internationally traded, where the price of goods is not influenced by domestic supply conditions.
- ▶ In sectors with countable outputs and relatively constant quality, the computation of physical measures of productivity can also be very useful. For example, in construction, it is possible to use physical measures such as residential units per worker per year. This is discussed further in Box I in the background report, available on the NCC website.
- ▶ There are limitations to comparisons of productivity across sectors, as the scale and mix of factors (in particular the level and type of capital used) differ across industries. This underlines the importance of international comparisons of sectors.

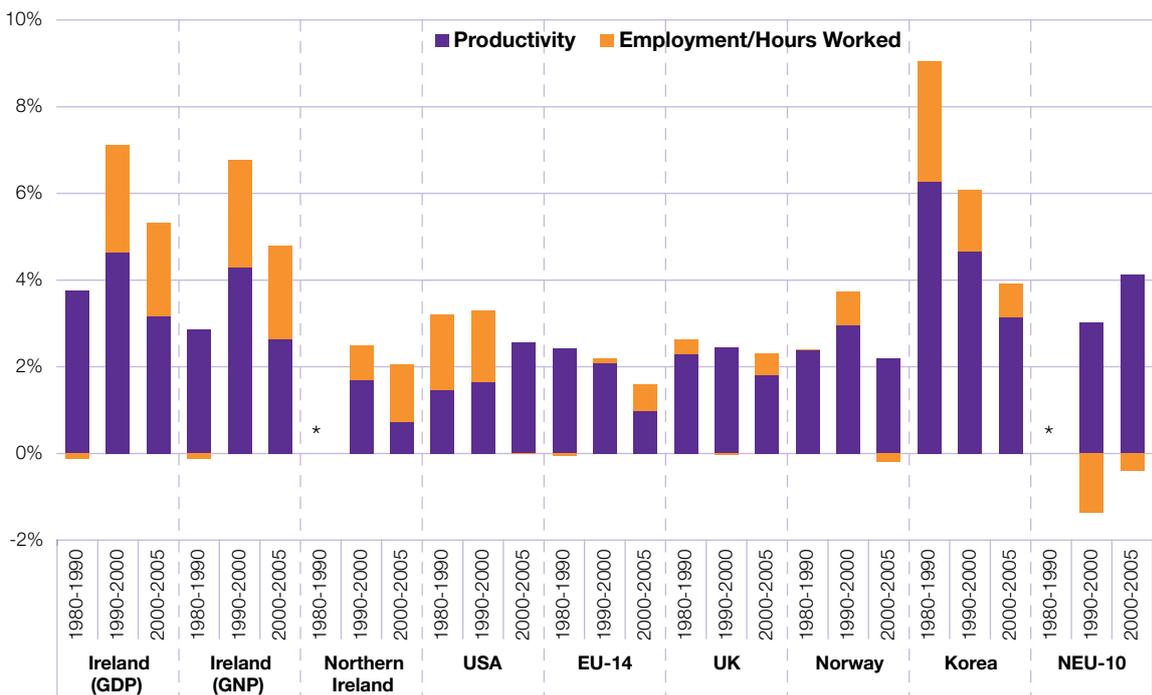
Notes on the calculations:

- ▶ The figures (except for Northern Ireland) are sourced from the Groningen Growth & Development Centre's Total Economy and 60-Industry databases. Irish figures have been updated, using the OECD's *Detailed National Accounts* 2006 edition. Figures have been converted to euro, 2003 prices. This relies on accurate measurement of PPP exchange rates and of inflation (OECD rates are used for both).
- ▶ The data presented are per-hour figures, as an important consideration in accurately capturing changes in productivity is the extent to which people are working shorter working weeks (and the extent to which people in Europe work shorter weeks than in the USA). However, the figures collected are averages – often across broad sectors - and actual hours worked in specific industries may differ from the average figures used.
- ▶ Finally, this paper makes adjustments to the productivity performance of foreign-dominated sectors of the Irish economy. High Irish productivity levels in modern manufacturing and certain tradable services may reflect the returns from R&D, marketing and management practices undertaken by multinationals in other countries, rather than in Ireland. Given that US firms are the primary source of FDI into Ireland, US levels of productivity are used as an alternative estimate of productivity in sectors with a large multinational presence, namely chemicals, electronics, printing/publishing, computers and finance. The purpose of this adjustment is to present alternative figures for productivity levels in foreign-dominated sectors in Ireland, as standard measures may potentially inflate Ireland's national productivity figures. It could be argued, that since Ireland has attracted many of the leading American firms in these sectors, their productivity levels, and thus of the sectors in Ireland, could be above the US average.

1. Ireland has enjoyed substantial economic growth since the 1980s. Whereas other OECD economies' growth over the same period has been driven by increases in productivity more so than in employment, Ireland's growth has been due to gains in both. Productivity increases must be the key driver of future growth in Ireland.

Economic growth has two components, increased labour utilisation (more people working or working longer hours), and increased labour productivity (working smarter). Figure 1 shows the contribution of both components to economic growth between 1980 and 2005.

Figure 1: Economic Growth and Productivity (GDP per Hour Worked) in Selected Economies, 1980-2005 (average annual growth rates)



Source: Forfás calculations; based on Groningen Total Economy database, January 2006
* denotes data not available; Northern Ireland periods are 1991-2000 and 2000-2004 and figures are based on data from the UK Office of National Statistics

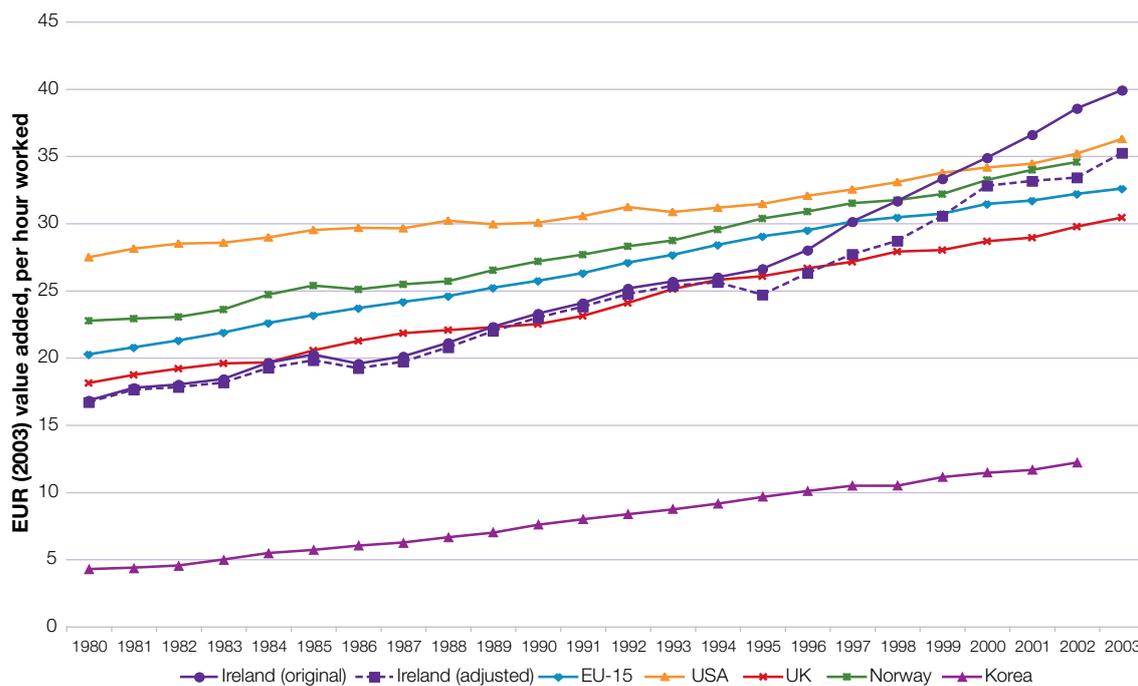
One feature of EU-15 growth over the period 1980-2005 is that it was driven more by productivity gains than increases in employment. While Ireland's productivity performance was above the EU and US averages, what distinguishes Ireland's (and Northern Ireland's) economic growth was the strong contribution of employment growth. Between 1980 and 2000, economic growth in the US was also a combination of both, albeit at lower levels. During the period 2000-2005, it was largely productivity improvements that drove US economic growth. Productivity growth has also driven economic growth in the ten new EU member states (NEU-10).

Productivity increases will be the key driver of future economic growth in Ireland. Ireland's employment rate is now on a par with leading countries. This means that while employment has played a large role in Ireland's catch up since 1990, and net migration and increasing participation of women in the labour force may continue to add to Ireland's labour supply, it is likely that the balance of future growth will be driven by productivity increases to a greater extent than before.

2. Ireland's productivity growth between 1990 and 2003 is estimated at 4.6 percent per annum. As high productivity levels in certain sectors may include the returns from R&D, marketing and management practices undertaken by multinationals in other countries, the productivity performance of these sectors is adjusted downwards to US levels. Based on this adjustment, Ireland's overall productivity performance is estimated to have averaged 3.3 percent a year between 1990 and 2003. While this is still a strong performance, it suggests that Ireland's productivity levels remain marginally below US levels.

Standard measures of productivity may inflate Ireland's national productivity figures (see Box 1). High reported productivity levels in sectors dominated by multinationals (chemicals, electronics, printing/publishing, computers and finance) may reflect the returns from R&D, marketing and management practices undertaken by multinationals in other countries, rather than in Ireland. For a more realistic estimate of productivity in Ireland, an alternative to using GDP/ GNP statistics is to assume American per hour productivity levels in those sectors, given that US firms are the primary source of FDI into Ireland. This gives more realistic productivity figures for MNC dominated sectors, and a revised national average for productivity (figure 2).

Figure 2: Per Hour Labour Productivity (€2003) In Selected Economies, 1980-2003, With and Without Adjustments for MNC Activities in Ireland



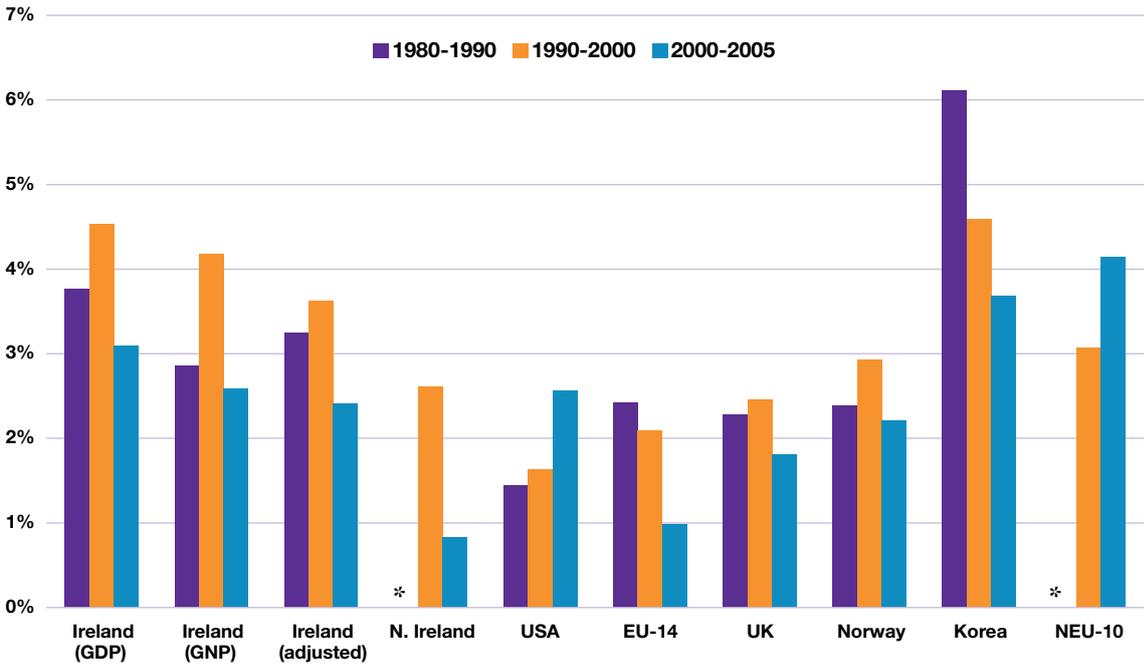
Source: Forfás calculations; based on Groningen Growth and Development Centre, 60 Industry Database, October 2005, <http://www.ggdc.net>

Making such an adjustment lowers average per hour productivity growth in Ireland between 1990 and 2003 from 4.6 percent per annum to 3.3 percent per annum. This still represents a strong performance. This compares to annual average productivity growth of 1.85 percent in the EU and 1.5 percent in the USA over the same period. It indicates that, in terms of per hour productivity levels, by 2003, Ireland had almost but not yet converged with US levels.

3. While Ireland's productivity growth has been strong and remains strong relative to other countries, between 2000 and 2005 it slowed to its lowest levels since 1980, at a time when productivity growth accelerated in the USA and remained strong in the ten new EU member states.

Productivity measures based on GDP, GNP, and the MNC adjusted series considered in section 2, all point to strong Irish productivity growth rates since 1980, particularly during the late 1990s (see figure 3).³

Figure 3: Growth in Productivity (GDP per Hour Worked) in Selected Economies, 1980-2005 (average annual growth rates)



Source: Forfás calculations; based on Groningen Total Economy database, January 2006; adjusted figures for Ireland run from 1980 to 2003
 * denotes data not available; Northern Ireland periods are 1991-2000 and 2000-2004 and figures are based on data from the UK Office of National Statistics

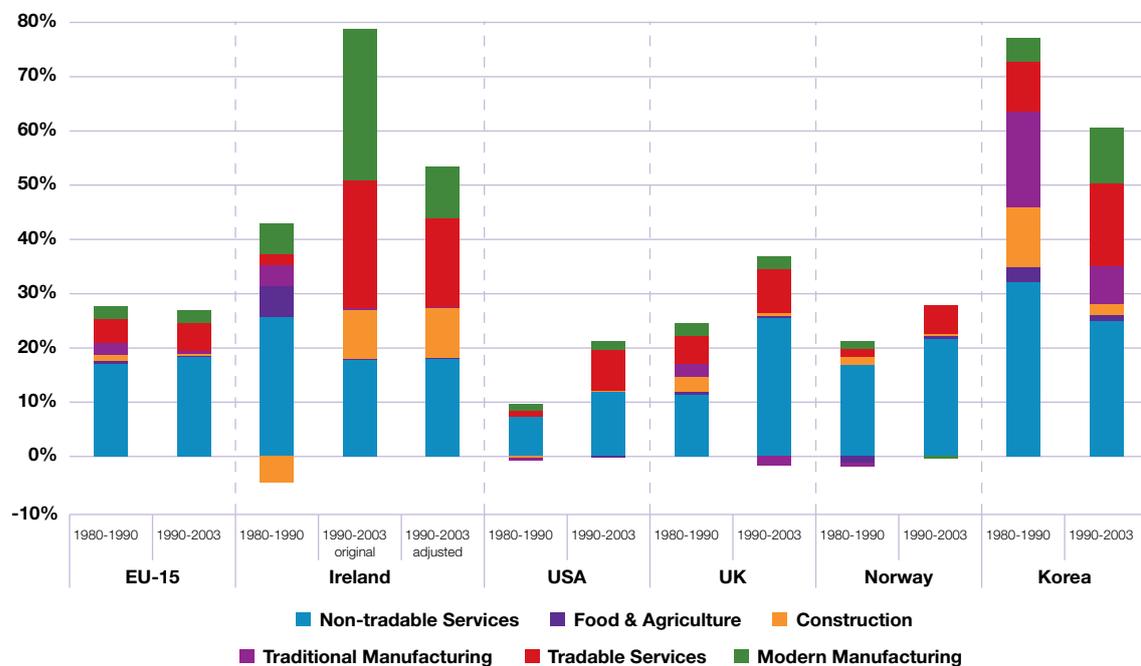
All three measures point, however, to a sharp slowdown in Irish productivity growth between 2000 and 2005. The figures indicate that productivity growth between 2000 and 2005 was about 1.5 percent lower than the 1990-2000 period. The data suggest that productivity growth was particularly poor in 2005. This slowdown comes at a time when productivity growth is accelerating in the USA and remains strong in the ten new EU member states from Eastern and Southern Europe. In both Northern Ireland and the EU as a whole, productivity growth rates appear to have fallen significantly since 1990.

³ GNP is typically used as a measure of national income rather than output. It is used in Ireland's case due to the large gap between GDP and GNP. Used in estimates of productivity, however, it may unfairly exclude some activities of foreign MNCs in Ireland and include income to Irish corporations that resulted from output overseas.

4. Ireland's productivity growth between 1990 and 2003 was driven by a continued strong performance in modern manufacturing and an improvement in the performance of construction and tradable services. The traditional manufacturing and food and agriculture sectors have not contributed significantly to productivity growth, while non-tradable services have made a relatively small contribution to Irish productivity growth.

Figure 4 examines the sectors that have contributed to Ireland's productivity growth between 1980 and 2003 and compares Ireland's experience with those in other economies. The unadjusted productivity statistics suggest that of Ireland's 78 percent increase in per hour productivity between 1990 and 2003, one-third has come from 'modern' manufacturing (1990-2003 original).⁴ In 2003, modern manufacturing accounted for just 6.6 percent of total hours worked in the economy.

Figure 4: Growth in Per Hour Labour Productivity, Attributed to Broad Sectors, in Selected Economies, 1980-1990 and 1990-2003, With and Without Adjustments for MNCs.



Source: Forfás calculations; based on Groningen Growth and Development Centre, 60 Industry Database, October 2005, <http://www.ggdc.net>

About 25 percent of Ireland's per hour productivity growth disappears in the adjusted figures ('1990-2003 adjusted' in figure 4). With this adjustment, it can be seen that modern manufacturing still makes a relatively large contribution to Ireland's productivity growth, despite a small employment share. Construction and tradable services have also contributed to productivity growth. Traditional manufacturing and the broad agriculture and food processing sectors did not contribute substantially to productivity growth during the period 1990-2003.

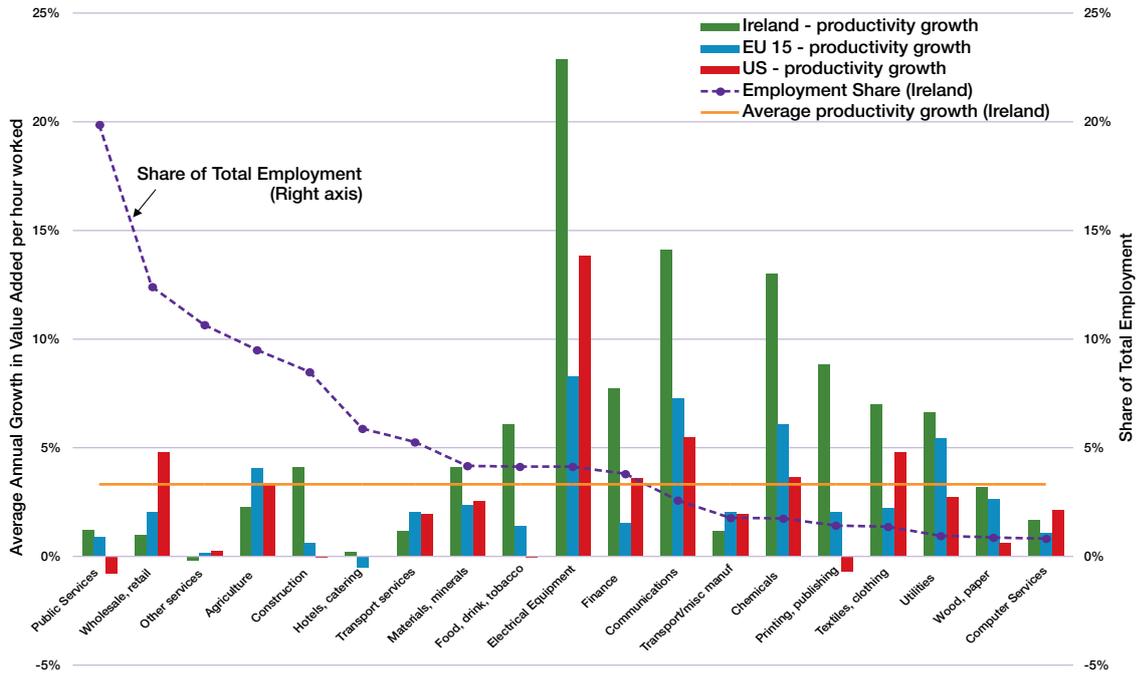
Due to its large size, the non-tradable services sector forms the bulk of productivity gains across most economies. However, its contribution to growth in Ireland is significantly lower than in the other benchmarked countries. It accounted for just one third of the growth in the adjusted productivity series. By virtue of its size, a €1 increase in average per hour productivity in non-tradable services would make a much larger contribution to overall economic growth – and by extension living standards – than in any other sector.

⁴ Manufacturing can be broken down into two stylised sectors: 'modern' manufacturing (chemicals, electronics, and printing/publishing, which includes the reproduction of software); and 'traditional' manufacturing, which includes textiles, wood/paper products, materials and minerals, transport goods and furniture. These stylised definitions of modern and traditional manufacturing are broadly based on the nature of the final products produced. 'Traditional' manufacturing firms can, of course, utilise advance materials, technologies, and management practices.

5. Mirroring international trends, productivity growth rates have been highest in a narrow range of technology intensive manufacturing and services sectors in Ireland.

Figure 5 compares the average growth rate in productivity of all sectors over the period 1990-2003, in Ireland, the EU-15, and the USA respectively. Sectors are ranked by share in total employment in Ireland (average over the period 1990-2003), with the largest sectors in Ireland on the left hand side. Average growth in productivity is indicated by the bars. The adjusted Irish average productivity growth rate of 3.3 percent over the period is shown by the orange line.

Figure 5: Growth in Labour Productivity by Sector in Ireland, the USA, and the EU-15, Ranked By Employment Share in Ireland, 1990-2003



Source: Forfás calculations; based on Groningen Growth and Development Centre, 60 Industry Database, October 2005, <http://www.ggdc.net>

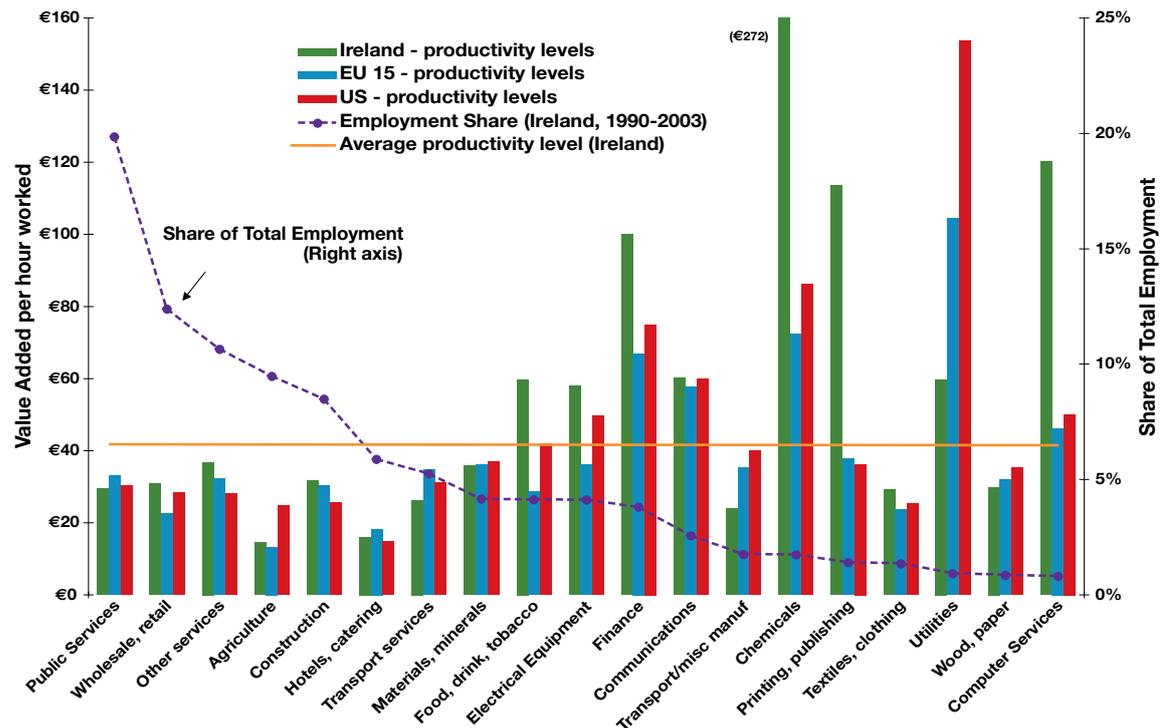
As can be seen, productivity growth rates vary significantly across sectors within all three economies. In particular, the larger sectors in Ireland by employment, on the left of the chart (from public services to transport services), perform below the economy wide average, with the exception of construction. Ireland's productivity growth has had a narrow base.

- ▶ While Irish productivity growth was slower in agriculture than in the EU and USA, the food, drink, and tobacco sector experienced faster productivity than their international peers.
- ▶ In construction, the statistics point to an increase in productivity during the period 1990-2003, having fallen during the 1980s.
- ▶ In manufacturing, which is declining in employment share, productivity growth rates are significantly higher in modern manufacturing than in traditional manufacturing. Traditional manufacturing has experienced particularly low productivity growth during the latter part of the 1990-2003 period.
- ▶ Over two thirds of the hours worked in the Irish economy are worked in the services sector. Productivity has grown strongly in communications, utilities (electricity, gas and water) and finance but has not grown significantly in tourism (hotels and catering), transport services or wholesale/retail trade. This contrasts with the performance of the wholesale and retail trades in the USA. Public services, the largest sector of the Irish economy (civil service, education, and health), performs well relative to the EU and US averages but records low productivity growth rates relative to other sectors of the Irish economy.

6. Despite Ireland's convergence to EU and US productivity levels, Ireland's productivity levels lag EU and US levels in several sectors of the economy, but particularly in some traditional manufacturing sectors and utilities.

While figure 5 assessed productivity growth rates since 1990, figure 6 compares actual productivity levels in Ireland, the EU-15, and the US in 2003, the latest year for which figures are available. Actual productivity levels determine current living standards. As demonstrated by the employment share line (average over the period 1990-2003), the largest sectors in Ireland are at the left hand side of the chart.

Figure 6: Per Hour Labour Productivity Levels by Sector, Ranked by Employment Share in Ireland (2003)



Source: Forfás calculations; based on Groningen Growth and Development Centre, 60 Industry Database, October 2005, <http://www.ggdc.net>

As figure 6 shows, actual productivity levels vary significantly across sectors and across all three economies. Similar to the finding from figure 5, the larger sectors in the economy are associated with a weaker productivity performance.⁵

- ▶ Productivity in agriculture is significantly lower in Ireland and the EU 15 than in the US, while Ireland performs well in the food sector, perhaps due to the presence of MNCs in Ireland. Productivity in construction is similar in all three economies.
- ▶ In manufacturing sectors, the charts confirm that Irish manufacturing divides between high performance sectors (chemicals, electronics and printing/publishing) and more traditional sectors, where productivity lags US levels in transport/miscellaneous manufacturing and in wood/paper products.
- ▶ Finally, in services sectors, productivity levels are low in the public service across all three economies. Productivity in communications is in line with the EU and US averages, but productivity in utilities shows a significant (57 percent) lag on the US average. Productivity in computer services and in financial services appears high, but this may be influenced by the presence of multinationals in Ireland.

The remaining sections of this report discuss the performance of these manufacturing and services sectors in greater depth.

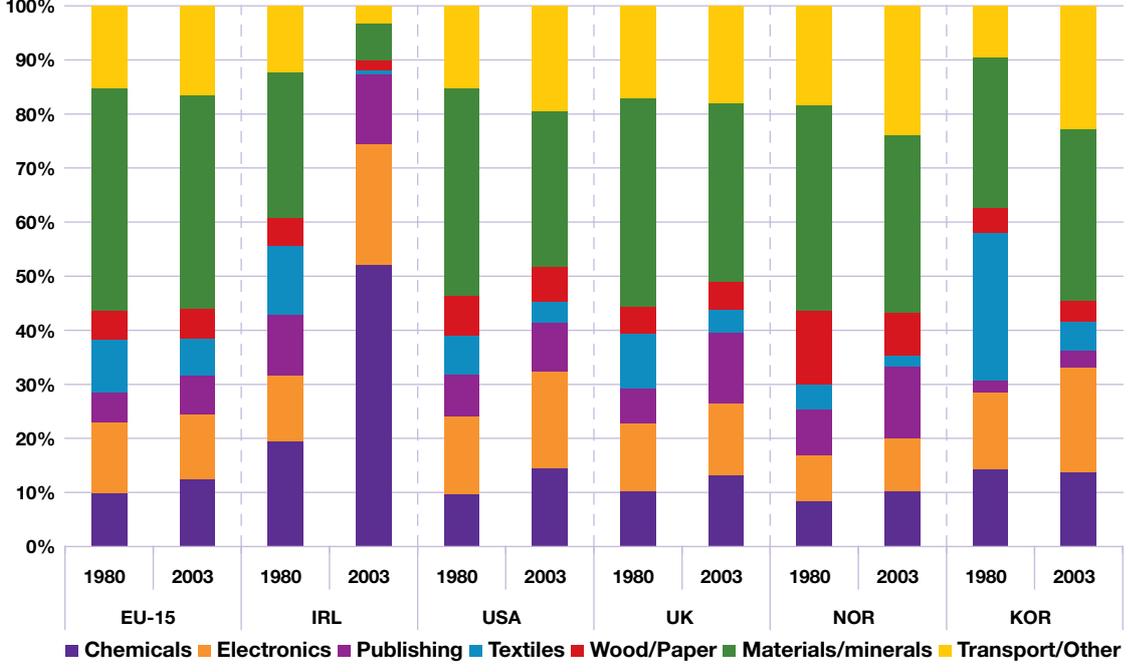
⁵ Due to differing capital intensities, care is required when interpreting productivity levels across sectors – see Box 1.

7. Within manufacturing, Irish output is dominated by three ‘modern’ manufacturing sectors – chemicals, electronics, and printing/publishing – which are substantially foreign-owned. Modern manufacturing has recorded substantially higher productivity levels and growth rates than other manufacturing sectors.

Manufacturing accounted for 12.5 percent of employment in Ireland in 2003, down from 17.2 percent in 1980. Manufacturing can be broken down into two stylised sectors: ‘modern’ manufacturing (chemicals, electronics, and printing/publishing, which includes the reproduction of software); and ‘traditional’ manufacturing, which includes textiles, wood/paper products, materials/minerals, and transport/furniture goods and miscellaneous.⁶

Employment in modern manufacturing increased over the whole period, from 4.7 percent to 6.6 percent of total employment, having peaked at 7.9 percent in 1999. There has been a sharp fall in employment in traditional manufacturing, which fell from 12.5 percent of employment in 1980 to less than six percent in 2003.

Figure 7: Value Added in Manufacturing Attributed by Sub-Sector, in Selected Economies, 1980 and 2003 (percent)



Source: Forfás calculations; based on Groningen Growth and Development Centre, 60 Industry Database, October 2005, <http://www.ggdc.net>

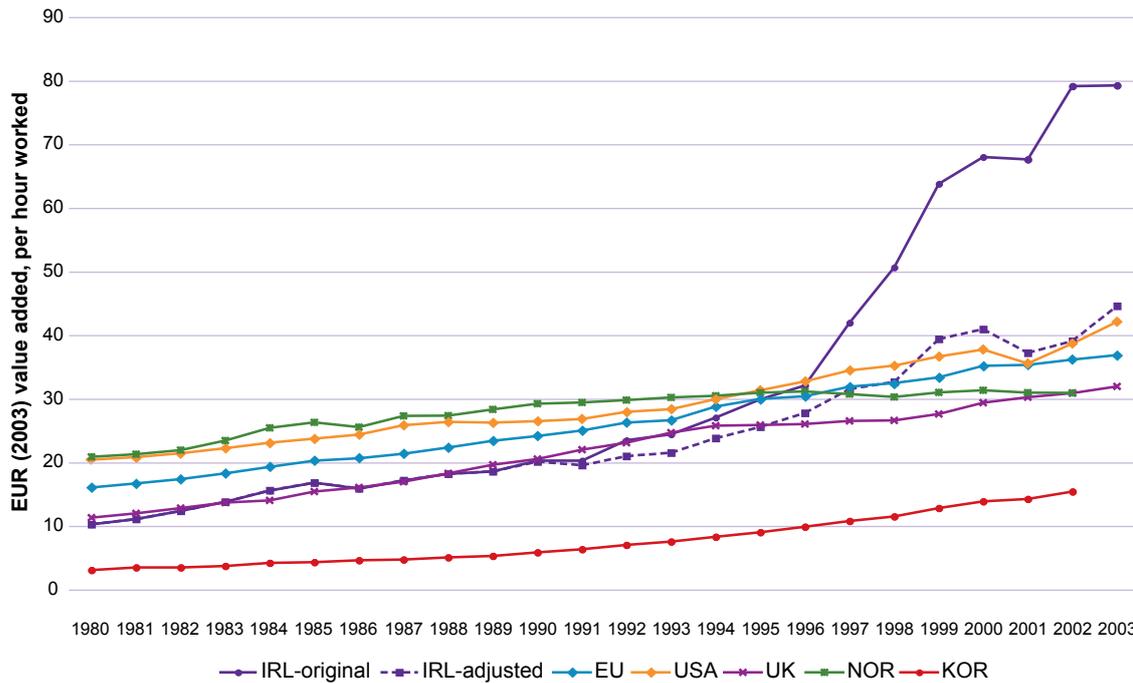
The productivity performances of modern and traditional manufacturing differ starkly. As figure 7 shows, value added from modern manufacturing sectors dwarfs traditional manufacturing sectors. Modern manufacturing accounts for almost 90 percent of value added in the manufacturing sector, while comprising just over half of total recorded hours worked. These modern sectors are driven by the performance of a relatively small number of foreign owned, in particular American, manufacturing plants.

⁶ The stylised definitions of modern and traditional manufacturing are broadly based on the nature of the final products produced. ‘Traditional’ manufacturing firms can, of course, utilise advance materials, technologies and management practices.

8. As high productivity levels in modern manufacturing may include the returns from R&D, marketing and management practices undertaken by multinationals in other countries, rather than in Ireland, the productivity performance of these sectors is adjusted downwards to US levels. This adjustment almost halves the 2003 figure for per hour productivity in Irish manufacturing. In traditional manufacturing, while productivity grew faster than the EU and US averages over the period as a whole, it has slowed since 1999 and average productivity in the sector in Ireland still lags the US by 13 percent.

As high productivity levels in modern manufacturing may include the returns from R&D, marketing and management practices undertaken by multinationals in other countries, rather than in Ireland, the productivity performance of these sectors is adjusted. To do this while still allowing Irish productivity in modern manufacturing sectors to be among the highest in the world, US levels of productivity for these sectors are used. The effect is noticeable: the adjusted series almost halves average manufacturing productivity in Ireland in 2003. Nonetheless, Irish manufacturing productivity still performs well internationally, surpassing the average EU levels in 1999 and reaching almost €45 an hour in 2003. The original series rises sharply in the late 1990s, reaching almost €80 an hour in 2003.

Figure 8: Per Hour Labour Productivity Levels in Manufacturing, in Selected Economies, with Adjusted Figures for Ireland, 1980-2003 (€2003)



Source: Forfás calculations; based on Groningen Growth and Development Centre, 60 Industry Database, October 2005, <http://www.ggdc.net>

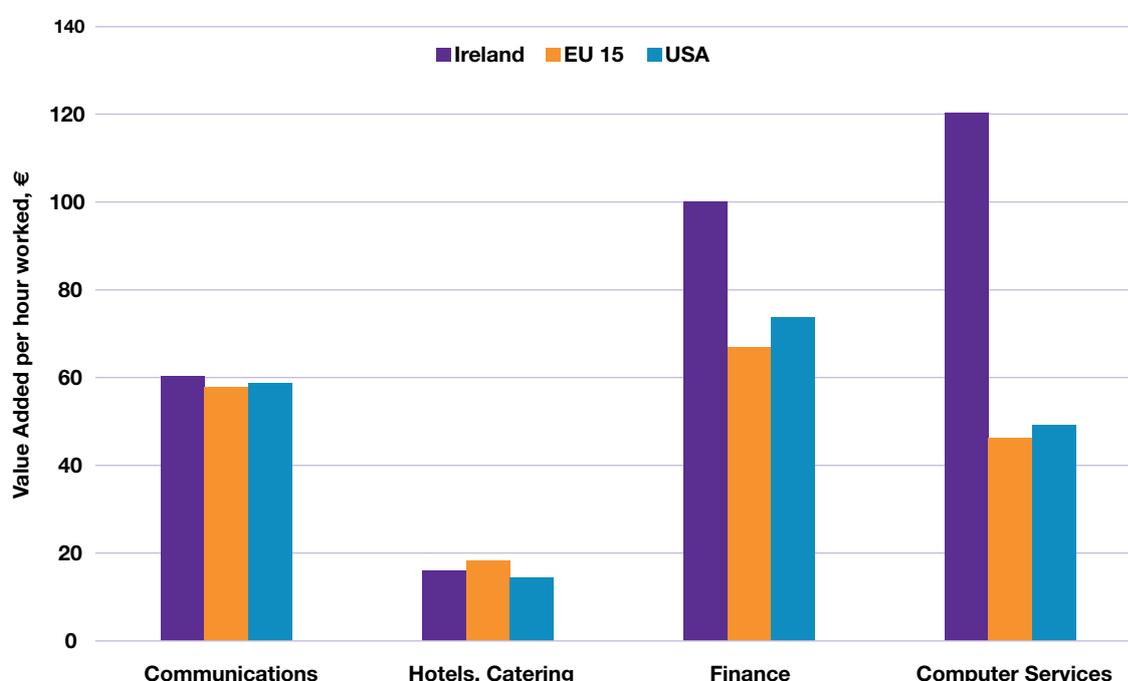
There is a sharp contrast between the performance of modern and traditional manufacturing in Ireland. Overall, productivity in traditional manufacturing in Ireland continues to lag the EU and US averages, the latter by 13 percent. In traditional manufacturing, average productivity growth during the period 1980-2003 was 5.4 percent, but for the period 1999-2003 was just three percent. Despite productivity growth, there remain significant productivity gaps between Ireland and the USA in the transport goods and wood and paper products sectors.

9. In tradable services, productivity in communications has improved in line with other countries, while productivity in tourism remains low relative to other sectors in Ireland. Ireland's financial and computers services sector appear to be performing strongly.

Services account for the bulk of employment in OECD economies, including Ireland. Accordingly, productivity improvements in this sector are central to overall economic growth and improvements in living standards. Measuring productivity in services is more difficult due to variations in quality that are difficult to quantify (see Box 1).

In this paper, a distinction is made between tradable and non-tradable services, based on the degree to which particular sectors are, or could be, internationally traded. Tradable services are defined to include communications, tourism, financial services and the computer services sector. Figure 9 shows productivity levels in 2003 across tradable services, in Ireland, the EU-15 average and the US average.

Figure 9: Value Added in Tradable Services by Sector, in Selected Economies, 2003



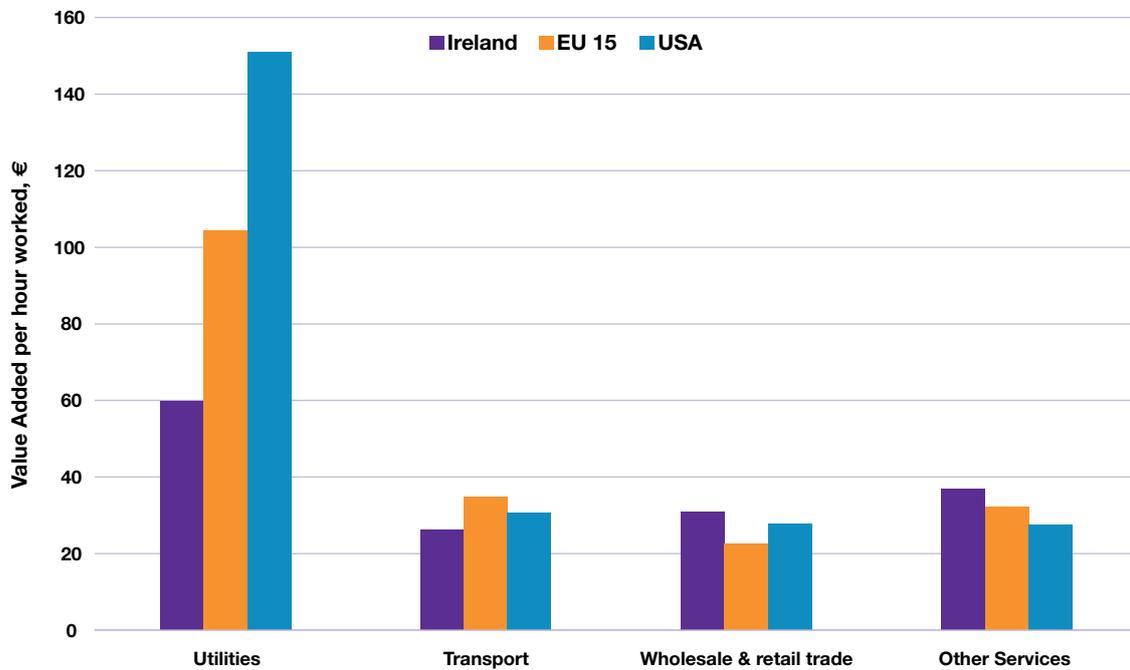
Source: Forfás calculations; based on Groningen Growth and Development Centre, 60 Industry Database, October 2005, <http://www.ggdc.net>

In communications, productivity in Ireland increased at a sharp pace between 1993 and 2003, so that by 2003 productivity levels were in line with the EU and US averages. In tourism, productivity levels are in line with the EU and US averages, but growth rates are low. In finance and computer services, the presence of multinationals may distort the figures, as discussed earlier. In finance, the productivity performance may differ between internationally-focused IFSC operations and the larger domestic retail banking sector. In computer services, Irish value added would appear to be distorted by the presence of MNCs in Ireland.

10. In non-tradable services, a substantial productivity gap exists in utilities between Ireland and other economies. The wholesale and retail trades and transport services have experienced little productivity growth since 1990. While public services generally record low productivity growth rates, simple measures of overall productivity suggest that Ireland performs well relative to the public sectors of other countries.

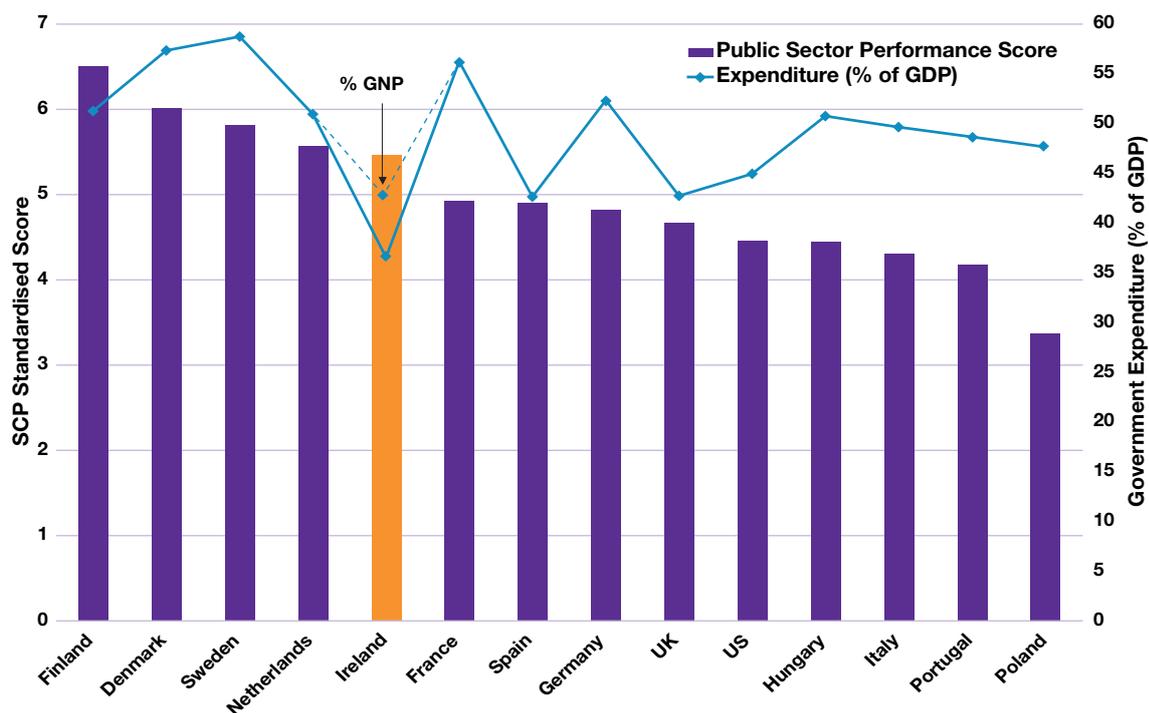
Non-tradable services comprise utilities, transport services, wholesale and retail trades, other market services, and public services. In utilities, a significant productivity gap remains between Ireland and the US, despite improvements during the 1990s in per hour productivity growth. In transport services, the productivity performance – both in terms of levels and growth in Ireland – has been poor over the period studied. In wholesale and retail trades and other markets services (including legal, consulting, and advertising), despite relatively high Irish productivity levels, productivity growth has been low over the period 1990-2003 (Figure 10).

Figure 10: Value Added in Non-Tradable Services by Sector, in Selected Economies, 2003



Source: Forfás calculations; based on Groningen Growth and Development Centre, 60 Industry Database, October 2005, www.ggdc.net

Figure 11: Performance and Expenditure in the Public Sector, 2004



Source: Social & Cultural Planning Office, Netherlands; OECD Education at a Glance

Coupled with Ireland's relatively lower levels of expenditure (blue line), this would imply a reasonably good 'productivity' performance. It should be stressed that the techniques for measuring public sector productivity are at an early stage, and these preliminary findings must be interpreted with caution.

International evidence suggests that the Irish public sector performs well relative to public sectors in other countries. Figure 11 is based on a Dutch study using OECD data and indicates that Ireland performs well in relation to the main functions of the public sector.⁸

⁸ Source: 'Public Sector Performance: An International Comparison', Social and Cultural Planning Office, The Hague, September 2004. The Social and Cultural Planning Office, an agency of the Dutch government, as part of the Dutch EU Presidency, prepared an international comparison of public sector performance in education, healthcare, law and order and public administration, using a range of socio-economic indicators as proxies for performance. More detailed performance measures are available for the four sub-sectors.

